AMENDMENTS TO THE CLAIMS

1. (currently amended) A quality control method for manufacturing a biopolymer array comprising

   (a) synthesizing a plurality of different biopolymer species on an array from monomeric or oligomeric building blocks comprising detectable protecting groups,

   (b) cleaving off the detectable protecting groups, and

   (c) carrying out a determination of the detectable protecting groups on the array after cleavage in order to determine the efficacy of deprotection,

   wherein at least some of the detectable protecting groups couple to and protect nucleobase amino groups.

2. (original) The method of claim 1, wherein the detectable protecting groups are fluorescent groups.

3. (original) The method of claim 2, wherein the fluorescent groups are selected from the group consisting of compounds comprising pyrene, dansyl, stilbene, rhodamine, or coumarin.

4. (withdrawn) The method of claim 1, wherein the detectable protecting groups are radioactively detectable groups.

5. (withdrawn) The method of claim 4, wherein the radioactively detectable groups are selected from the group consisting of ^{14}C, ^{32}P, and ^{3}H doped moieties.

6. (withdrawn) The method of claim 1, wherein the detectable protecting groups are electrochemically detectable groups.

7. (withdrawn) The method of claim 6, wherein the electrochemically detectable groups are selected from the group consisting compounds comprising ferrocene or phenothiazine moieties.

8. (withdrawn) The method of claim 1, wherein the detectable protecting groups are UV- or IR-detectable groups.

9. (withdrawn) The method of claim 8, wherein the UV- or IR-detectable groups are selected from the group consisting of compounds comprising aromatic nitro moieties, hydroxyl moieties, thiol, thioether, and thiophenol moieties, nitrile moieties, isocyanate, or halo moieties.

10. (withdrawn) The method of claim 1, wherein the detectable protecting groups are bioaffinity groups.

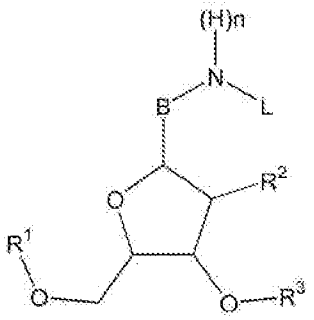
11. (withdrawn) The method of claim 10, wherein the bioaffinity groups are selected from the group consisting of compounds comprising biotin, digoxin, or digoxigenin moieties.

12. (original) The method of claim 1, wherein the biopolymer species are selected from the group consisting of nucleic acids, nucleic acid analogs, peptides, and peptide analogs.

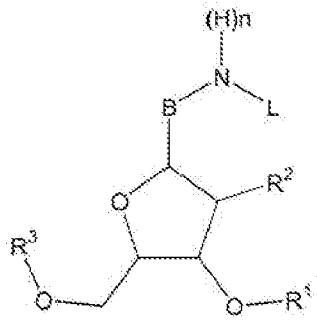
13. (original) The method of claim 1, wherein the biopolymer species are selected from the group consisting of nucleic acids and nucleic acid analogs and wherein the detectable protecting groups are coupled to nucleobases.

14. (canceled)

15. (currently amended) The method of claim 1, wherein the building blocks for the biopolymer synthesis are monomeric nucleotide building blocks having the general structural formulae (I) or (II):



I



II

wherein R^1 is an hydroxy protecting group,

R^2 is -H, -(C_1-C_{10})-alkoxy, -(C_2-C_{10})-alkenyloxy, -(C_2-C_{10})-alkynyloxy, -halogen, -azido, -NHR^7, -SR^7 or -OR^7, wherein R^7 is a protecting group or a reporter group,

R^3 is a phosphate, an H-phosphonate or other phosphate analog group which may contain a protecting group,

B is a nucleobase or a nucleobase analog,

n is 0 or 1, and

L is a detectable protecting group.

16. (original) The method of claim 15, wherein R^1 is selected from the group consisting of substituted triphenylmethyl groups, pixyl groups, photocleavable groups, and substituted silyl protecting groups.

17. (original) The method of claim 15, wherein R^1 is selected from the group consisting of 4,4'-dimethoxy triphenylmethyl compounds, 4-monomethoxy triphenyl compounds, p-nitrophenylpropoxy carbonyl (NPPOC), (α-methyl)-6-nitropiperonyloxy carbonyl (MeNPOC), *tert*-butyldimethyl silyl (TBDMS), and *tert*-butyldiphenyl silyl (TBDPS).

18. (original) The method of claim 15, wherein R^3 is a phosphite amide group.

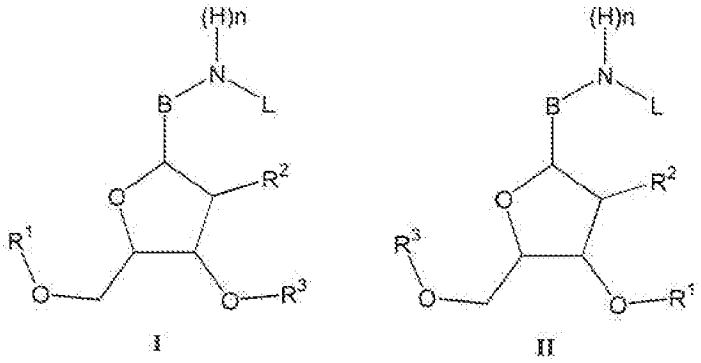
19. (currently amended) The method of claim ~~12~~ 18 wherein R^3 is $-P(R^5)-NR^4R^5$ wherein R^4 and R^5 are independently selected from the group consisting of -H, -(C_1-C_{10})-alkyl, -(C_2-C_{10})-alkenyl, and -(C_6-C_{22})-aryl, and R^6 is selected from the group consisting of H, -(C_2-C_8)-alkenyloxy, -(C_2-C_6)-alkenyl, -(C_1-C_6)-alkyl, and -(C_1-C_6)-alkoxy, wherein each group contains a substituent selected from the group consisting of -halo, p-nitroaryloxy, and -cyano.

20. (original) The method of claim 19, wherein R^6 is a 2-cyanoethyloxy group.

21. (original) The method of claim 15 wherein L has the structure -C(O)-R when n=1, or =CH-NR^8R when n=0, wherein R is a residue of the protecting group and R^8 is selected from the group consisting of H and -(C_1-C_3)-alkyl.

22. (currently amended) The method of claim 15, wherein B is selected from the group consisting of adenine, guanine, cytosine, aza analogs thereof, ~~and~~ deaza analogs thereof, and analogs thereof containing additional amino groups.

23. (withdrawn) A nucleic acid synthesis building block having the general structural formulae (I) or (II):



I II

wherein R^1 is an hydroxy protecting group,

R^2 is -H, -(C_1-C_{10})-alkoxy, -(C_2-C_{10})-alkenyloxy, -(C_2-C_{10})-alkynyloxy, -halogen, -azido, -NHR^7, -SR^7 or -OR^7, wherein R^7 is a protecting group or a reporter group,

R^3 is a phosphate, an H-phosphonate or other phosphate analog group which may contain a protecting group,

B is a nucleobase or a nucleobase analog,

n is 0 or 1, and

L is a detectable protecting group.

24. (withdrawn) A method for the production of a nucleic acid array comprising

(a) synthesizing a plurality of different biopolymer species on an array from monomeric or oligomeric building blocks comprising detectable protecting groups according to claim 23,

(b) cleaving off the detectable protecting groups, and

(c) carrying out a determination of the detectable protecting groups on the array after cleavage.

25. (withdrawn) A reagent kit for the synthesis of a nucleic acid array comprising a nucleic acid synthesis building block according to claim 23.

26. (withdrawn) A reagent kit for the synthesis of a nucleic acid array comprising at least 2 nucleic acid synthesis building blocks according to claim 23, each building block carrying a different detectable protecting group.